



PRELIMINARY ENVIRONMENTAL HEALTH ASSESSMENT
Los Angeles Orphan Wells at 323 and 324 Firmin Street, Los Angeles

August 2, 2016

Note: On July 30, 2016, Los Angeles County Department of Public Health (DPH) was notified by the City of Los Angeles Emergency Management Division about the above site. DPH was requested to assess whether conditions at the subject site could be adversely affecting the health and safety of residents. Based on review of available environmental and health data, DPH has prepared this Preliminary Environmental Health Assessment.

Background: On July 15, 2016, the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) in cooperation with the City of Los Angeles, began work to plug and abandon two orphan wells on Firmin Street in the Granite Hills neighborhood of Echo Park. Both orphan wells, commissioned prior to 1903, are located in the front yards of residential properties on a small cul-de-sac. One of the wells (Rogalske 10) was unsecured and leaking, which resulted in a "rotten egg" odor. This well is now plugged and residents are no longer reporting a "rotten egg" odor. The second well (Patel 1) is projected to be plugged in September. The plugging and abandonment process requires operation of large, heavy industrial equipment (e.g. workover rigs and cement pumps) adjacent to residential homes.

On July 30, 2016, the Los Angeles County Department of Public Health (Public Health) was notified that a nearby resident was experiencing health symptoms during the well-plugging and abandonment operations. Public Health was advised that outdoor air was being monitored by the South Coast Air Quality Management District, who noted that the measured levels of methane and hydrogen sulfide did not pose a health threat. However, they did note that noise, odors, dusts, and soot generated from these operations do pose risks to the community including safety hazards and short-term health effects. Additionally, a third oil well (Patel 2) on a neighboring residential property was recently determined to pose health risks to the community due to regulatory non-compliance.

Problem Identification: Resident have registered health and safety complaints regarding a strong petroleum odor and the presence of black soot-like dust on their skin and clothing as a result of well-plugging activities. On August 1, 2016, Public Health officials visited Firmin Street to observe operations, document environmental conditions and conduct resident interviews. Public Health observed a number of physical safety hazards concerning equipment operations in close proximity to residences, as well as potential exposure of residents to emissions that could produce short and long term health risks.

Safety Hazard Observations:

- Chronic and acute high-level noise exposure from both point and mobile sources. Heavy oil machinery onsite consisted of compressor associated with the drilling rig, fuel delivery trucks, excavators, power unit and the rotary swivel. Noise from similar equipment at 25 feet can range from 48 – 95 dBA depending on weather conditions, topography, surrounding reflective surfaces, and other parameters. Per the Los Angeles City Noise Regulation, noise above 50 dBA during daytime hours (7AM to 10PM) requires mitigation. This noise represents a disturbance for nearby residents despite the use of muffling devices on equipment.

- There is no dedicated safety official on-site. The representative from DOGGR advised that he would fill in as a safety person and the rig workers also functioned as safety persons; however, this approach does not ensure worker and community safety.
- Numerous trip-and-fall hazards on site, including equipment, conduits, and other items which present a risk of physical injury to residents and personnel. Residents were observed walking in and around the without readily visible site markers, barriers, or notices to guide residents. Residents should not accessing industrial work areas, knowingly or unknowingly; a clear separation between ingress/egress to the residences should be in place.
- Other safety issues identified include: lack of designated flagman to direct traffic; lack of appropriate personal protective equipment such as hard-hats or vests in the work area for some personnel; poor communication between security guards and the on-site supervisor; lack of crane safety plan and project safety plan onsite; lack of security and maintenance portable toilet.

Community Health Impacts:

Public Health identified 7 homes immediately adjacent to the well-plugging operations during the August 1 site visit. All 7 interviewed households reported short-term health symptoms that began when work started on the orphan well project. In some cases, residents reported that their medical providers prescribed new medications as a result of worsened respiratory conditions. Commonly reported symptoms included headache, nausea, vomiting, eye and throat irritation, skin rashes and exacerbation of pre-existing respiratory conditions such as asthma. These complaints are consistent with exposure to strong petroleum odors, increased levels of airborne particulate matter, and direct contact with crude oil.

Additionally, Public Health observed excessive noise from equipment drilling activities at the front porches of nearby residential properties. Conversations during Public Health interviews in residents' homes were inaudible unless all doors and windows were shuttered. Some residents reported observing crews working extended hours, including weekends, beginning at 6:30am and sometimes ending at 9:00pm without prior community notification. One resident who works night shifts reported inability to sleep during the day.

Public Health identified a third well (Patel 2) located at 314 Firmin Street. This well is in the backyard of two residential properties and considered to be "idle." This means oil is extracted from the well, but on an infrequent, intermittent basis. DOGGR issued a notice of violation to the operator of Patel 2 on June 21, 2016 for 8 violations, including lack of proper signage, unremediated spills, leaking tank, and fencing and floor grating to prevent safety hazards to people and animals.

Public Health observed the unsecure and unsafe Patel 2 site during its site visits. Open buckets of oil drilling fluids were present near an open tank, all of which are accessible by small children and pets due to breaches in the fence. A resident reported her two children (under age 6) were playing in crude oil product on the surrounding soil and in the buckets. As a result, her children experienced skin rashes, which is a known short-term health effect of direct contact with crude oil and other petroleum products. In addition to the short-term symptoms experienced by children living on the property, the noncompliant Patel 2 Well poses an ongoing source of exposure to petroleum and presents a long-term health risk to residents.

Potential Additional Sources of Exposure: Construction area exists one block to the east, where nine wells are in the process of being plugged and abandoned. Pile of compost or mulch on a nearby property may be contributing to some odors.

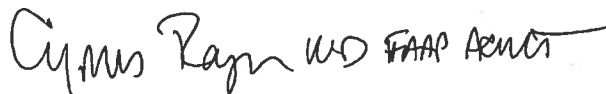
Potentially Affected Population: The wells are in a residential neighborhood near downtown Los Angeles. Residents include young children and elderly, and a high school is located two blocks to the east. The majority of households that reported symptoms to Public Health have pre-existing chronic health conditions and/or disabilities. Area residents included some Spanish-only speakers, who voiced their concerns only after being interviewed in Spanish by DPH.

Assessment: DOGGR has indicated the plugging and abandonment process for these two wells is challenging, considering the small cul-de-sac area in which industrial equipment is required to operate. DOGGR reported that its contractor has taken "all possible mitigation measures" to reduce the levels of dust, odor and noise during well plugging activities. Exposure to dusts, soot, odor, and noise continue to cause symptoms in some residents, and these symptoms are expected to persist at least until the project is complete. Solutions to protect the public's health include implementing additional safety measures and offering temporary relocation assistance to affected residents in close proximity to the worksite locations.

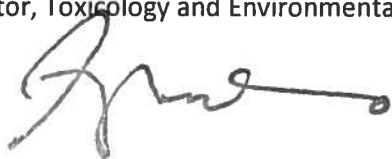
DOGGR has issued a notice of violation that addresses health concerns regarding the Patel 2 Well. However, there is no record of the operator complying with the notice of violation by the deadline of July 21, 2016. This well continues to present short-term and long-term health risks of direct exposure to crude oil and other petroleum products. Expedited action should be taken by DOGGR and state regulators to enforce compliance and mitigate the risk for residents living on the same property.

Recommendations:

- (1) Direct the Responsible Party (RP) to stop work where residents are currently at risk of injury or harm from exposure to physical hazards, noise, odor, and particulate emissions from well-plugging activities, until such time that these hazards are abated.
- (2) Direct the RP to provide temporary relocation assistance to residents that are at risk of injury or harm.
- (3) Direct the RP to abate safety hazards that place workers and residents at risk, and to refer unsafe working conditions to Cal/OSHA for follow-up. A Worker and Community Safety Plan must be readily available onsite and to participating agencies and residents.
- (4) DOGGR must direct the RP to mitigate health risks posed by the non-compliant Patel 2 Well, which is located in the backyard of 314 Firmin Street.
- (5) As the Lead Agency, DOGGR should provide an initial project briefing to affected residents, the community, Public Health, the Los Angeles County Board of Supervisors, and appropriate local elected officials, and provide regular updates thereafter.

Handwritten signature of Dr. Cyrus Rangan, M.D., F.A.A.P., F.A.C.M.T.

Dr. Cyrus Rangan, M.D., F.A.A.P., F.A.C.M.T.
Director, Toxicology and Environmental Assessment Branch

Handwritten signature of Angelo J. Bellomo, REHS, QEP.

Angelo J. Bellomo, REHS, QEP
Deputy Director for Environmental Protection